

ABSTRACT

A dragline excavating machine includes a gearless direct drive AC drive motor for driving each of the hoist and the drag drums in the system. The gearless AC motor is driven using a digital system which receives AC power from the utility system rectifies the power using active front end circuits, and converts the resultant DC to a frequency controlled AC using an inverter circuit. The resultant AC signal is employed to drive the gearless AC motor, resulting in reduced harmonic distortion, unity or leading power factor, and increased efficiency, reduced operating costs, and reduced mean time between failure.